

The rejection of Claims 1, 4, 5, 11, and 12 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,172,432 (Schnackenberg et al.) is respectfully traversed.

Schnackenberg et al. describe an automatic transfer switch apparatus for use with a stand-alone generator, for supplying emergency power to a residence or small business. Transfer switch apparatus 10 includes control apparatus 15, and single pole double-throw relays 31-38. Control apparatus 15 includes control panel 40, with appropriate display LEDs and LCD 45, and input keys and/or switches 50.

Applicant respectfully traverses the Official Notice taken by the Examiner with respect to Claims 1, 4, 5-11, and 12. More specifically, the Office Action recites at page 3 that "it is well known in the art to use transformers because by design, they raise or lower the voltage of alternating current of the original source (convert) for the purpose of providing an output voltage signal which can be utilized by an associated element without causing damage to the element." However, the Office Action fails to provide the Applicant with any specific citation to any reference supporting the Official Notice, and as such the rejection, therefore, fails to provide the Applicant with a fair opportunity to respond to the rejection, and fails to provide the Applicant with the opportunity to challenge the correctness of the rejection. Therefore, Applicant respectfully requests that the Section 103 rejection be withdrawn.

Furthermore, Applicant respectfully submits that the Section 103 rejection of Claims 1, 4, 5-11, and 12 is not a proper rejection. The mere assertion that such an apparatus would have been obvious to one of ordinary skill in the art does not support a *prima facia* obviousness rejection. Rather, each allegation of what would have been an obvious matter of design choice must always be supported by citation to some reference work recognized as standard in the pertinent art, and Applicant given an opportunity to challenge the correctness of the assertion or the repute of the cited reference. Applicant has not been provided with the citation to any reference supporting a combination of Schnackenberg et al. with the Official Notice taken in the Office Action. The rejection, therefore, fails to provide the Applicant with a fair opportunity to respond to the rejection, and fails to provide the Applicant with the opportunity to challenge the correctness of the rejection. Therefore, Applicant respectfully requests that the Section 103 rejection be withdrawn.

Additionally, as is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching,

suggestion, or incentive supporting the combination. Schnackenberg et al. do not describe nor suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Schnackenberg et al. with the Official Notice taken in the Office Action, because there is no motivation to modify the reference as suggested in the Office Action. Additionally, the Examiner has not pointed to any prior art that teaches or suggests modifying the disclosure, other than Applicant's own teaching. Rather, only the conclusory statement that "it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a transformer for the purpose of lowering the AC voltage of the source" suggests combining the disclosures.

Applicant respectfully submits however, that the cited art teaches away from the present invention. More specifically, Schnackenberg et al. describe an automatic transfer switch apparatus for use with a stand-alone generator, for supplying emergency power to a residence or small business. However, the present invention relates to an automatic transfer switch controller that includes at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources. Accordingly, Applicant respectfully submits that considering the significant differences between the automatic transfer switch apparatus described by Schnackenberg et al. and the automatic transfer switch controller of the present invention, Schnackenberg et al. teach away from the present invention.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art and the Official Notice, nor any reasonable expectation of success has been shown.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is

impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection appears to be based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Schnackenberg et al. is cited for an automatic transfer switch apparatus including a controller, a power supply circuit, a voltage sense conditioning circuit, a solenoid driver circuit, a microcontroller, a user interface, and at least one LED and an Official Notice is cited for the use of transformers being well known in the art. Since there is no teaching nor suggestion in the cited art for the combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicant requests that the Section 103 rejection of Claims 1, 4, 5-11, and 12 be withdrawn.

Further, and to the extent understood, neither Schnackenberg et al. nor the Official Notice taken in the Office Action, considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 1 recites an automatic transfer switch controller comprising "a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface."

Neither Schnackenberg et al. nor the Official Notice, considered alone or in combination, describe or suggest an automatic transfer switch controller including "a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for

operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, neither Schnackenberg et al. nor the Official Notice, considered alone or in combination, describe or suggest an automatic transfer switch controller including at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources. More specifically, neither Schnackenberg et al. nor the Official Notice, considered alone or in combination, describe or suggest an automatic transfer switch controller including a power supply circuit to regulate and filter input power. Additionally, neither Schnackenberg et al. nor the Official Notice, considered alone or in combination, describe or suggest an automatic transfer switch controller including an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies. Rather, in contrast to the present invention, Schnackenberg et al. describe an automatic transfer switch apparatus but, do not describe nor suggest at least one transformer, a power supply circuit to filter input power and an embedded microcontroller configured to monitor utility and generator frequencies. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Schnackenberg et al. in view of the Official Notice

Claims 4, 5, 11, and 12 depend directly from independent Claim 1. When the recitations of Claims 4, 5, 11, and 12 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claims 4, 5, 11, and 12 likewise are patentable over Schnackenberg et al. in view of the Official Notice

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 1, 4, 5, 11, and 12 be withdrawn.

The rejection of Claims 2 and 3 under 35 U.S.C. § 103(a) as being unpatentable over Schnackenberg et al. (U.S. Pat. No. 6,172,432) in view of Gagnon (U.S. Pat. No. 6,288,640) is respectfully traversed.

Schnackenberg et al. is described above. Gagnon describes an intrusion detection system including a plurality of sensors (2A...2X), a corresponding plurality of receivers (3A...3X), an analog-to-digital (A-to-D) converter 23 within a microcontroller 19 and a processor (4) that compares potential alarm signals from a plurality of sensors and determines that an intrusion has occurred if the potential alarm signal for a particular station does not coincide with a potential alarm signal for a neighboring sensor.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Schnackenberg et al. nor Gagnon, considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Schnackenberg et al., with Gagnon, because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicant's own teaching. Rather, only the conclusory statement that “[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Schnackenberg et al. with the teachings of Gagnon” suggests combining the disclosures.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levingood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Further, and to the extent understood, neither Schnackenberg et al. nor Gagnon, considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically Claim 1 recites an automatic transfer switch controller comprising “a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.”

Neither Schnackenberg et al. nor Gagnon, considered alone or in combination, describe or suggest an automatic transfer switch controller comprising "a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, neither Schnackenberg et al. nor Gagnon, considered alone or in combination, describe nor suggest, an automatic transfer switch controller including at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources. More specifically, neither Schnackenberg et al. nor Gagnon, considered alone or in combination, describe or suggest an automatic transfer switch controller including a power supply circuit to regulate and filter input power. Additionally, neither Schnackenberg et al. nor Gagnon, considered alone or in combination, describe or suggest an automatic transfer switch controller including an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies. Rather, in contrast to the present invention, Schnackenberg et al. describe an automatic transfer switch apparatus but, do not describe nor suggest at least one transformer, a power supply circuit to filter input power and an embedded microcontroller configured to monitor utility and generator frequencies and Gagnon describes an intrusion detection system including a plurality of sensors, a corresponding plurality of receivers, an analog-to-digital (A-to-D) converter within a microcontroller and a processor that compares potential alarm signals from a plurality of sensors but, Gagnon does not describe a low pass filter configured to remove noise from the power supply. Furthermore, Applicant respectfully disagrees with the assertion within the Office Action that digital signals while containing the same information as analog, provide a stable output which is easier to distinguish from noise, thereby avoiding false alarms caused by drift. Rather, in contrast to such an assertion, Applicant submits that one skilled in the art, would know that the causes of noise and drift in electrical circuits are different, and that correcting a cause of noise does not necessarily address a problem with drift. Additionally, Gagnon does not describe using an analog-to-digital converter to correct a noise problem but, rather describes converting an analog signal to a digital signal using an analog-to-digital

converter to make the signal suitable for use by a microcontroller. (Column 4, lines 50-55). For at least the reasons set forth above, Claim 1 is submitted to be patentable over Schnackenberg et al., in view of Gagnon.

Claims 2, and 3 depend from independent Claim 1. When the recitations of Claims 2, and 3 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claims 2, and 3 likewise are patentable over Schnackenberg et al., in view of Gagnon.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 2, and 3 be withdrawn.

The rejection of Claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Schnackenberg et al. (U.S. Pat. No. 6,172432) in view of Iverson et al. (U.S. Pat. No. 4,423,336) is respectfully traversed.

Schnackenberg et al. is described above. Iverson et al. describe an electromechanically controlled switch assembly including an automatic, three position, removable, transfer switch and a three position, manually-operated bypass switch assembly that includes a conventional automatic control 427 including an exerciser clock to set day, time, and duration of the generator set exercise. Notably, Iverson et al. do not describe nor suggest a microcontroller configured to recognize jumper selections for an exerciser clock adjustable for settings for a preselected number of days

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Schnackenberg et al. nor Iverson et al., considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Schnackenberg et al., with Iverson et al., because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicant's own teaching. Rather, only the conclusory statement that "[i]t would have been obvious to one of ordinary

skill in the art at the time of the invention to modify Schnackenberg et al. with the teachings of Iverson et al for the purpose of setting day, time, and duration of the generator set exercise." suggests combining the disclosures. In the present case, neither a suggestion nor motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Further, and to the extent understood, neither Schnackenberg et al. nor Iverson et al., considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically Claim 1 recites an automatic transfer switch controller comprising "a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface."

Neither Schnackenberg et al. nor Iverson et al., considered alone or in combination, describe or suggest an automatic transfer switch controller comprising "a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, neither Schnackenberg et al. nor Iverson et al., considered alone or in combination, describe nor suggest, an automatic transfer switch controller including at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources. More specifically, neither Schnackenberg et al. nor Iverson et al., considered alone or in combination, describe or suggest an automatic transfer switch controller including a power supply circuit to regulate and filter input power. Additionally, neither Schnackenberg et al. nor Iverson et al., considered alone or in combination, describe or suggest an automatic

transfer switch controller including an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies. Rather, in contrast to the present invention, Schnackenberg et al. describe an automatic transfer switch apparatus but, do not describe nor suggest at least one transformer, a power supply circuit to filter input power and an embedded microcontroller configured to monitor utility and generator frequencies and Iverson et al. describe an electromechanically controlled switch assembly but, do not describe nor suggest a microcontroller that is configured to recognize jumper selections for an exerciser clock. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Schnackenberg et al., in view of Iverson et al.

Claim 6 depends from independent Claim 1. When the recitations of Claim 6 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claim 6 likewise is patentable over Schnackenberg et al. in view of Iverson et al.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claim 6 be withdrawn.

The rejection of Claims 7 and 8 under 35 U.S.C. § 103(a) as being unpatentable over Schnackenberg et al. (U.S. Pat. No. 6,172,432) in view of Kita et al. (U.S. Pat. No. 6,172,432) is respectfully traversed.

Schnackenberg et al. is described above. Kita et al. describe a motor operation controller (30), which can accommodate different power supply voltages by changing a minimum circuit configuration using common motors, wiring, etc., has an insulation structure between input power supply and the motors for providing the capability of bidirectional operation in a power mode and a regeneration mode. The motor operation controller (30) comprises a converter section (31) and an inverter section (5) for supplying power to a motor. In the converter section (5), there is an insulation type bidirectional DC voltage conversion function provided by an insulation type bidirectional DC voltage conversion section 32 having an insulation type bidirectional DC voltage converter 33, a controller 35, and a smoothing circuit 34. Notably, Kita et al. do not describe nor suggest a microcontroller that is configured to recognize jumper selections for supply voltages.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by

combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Schnackenberg et al. nor Kita et al., considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Schnackenberg et al., with Kita et al., because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicant's own teaching. Rather, only the conclusory statement that “[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Schnackenberg et al. with the teachings of Kita et al. for the purpose of providing a motor operation controller which can accommodate different power supply voltages” suggests combining the disclosures.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levingood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Further, and to the extent understood, neither Schnackenberg et al. nor Kita et al., considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically Claim 1 recites an automatic transfer switch controller comprising “a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.”

Neither Schnackenberg et al. nor Kita et al., considered alone or in combination, describe or suggest an automatic transfer switch controller comprising "a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, neither Schnackenberg et al. nor Kita et al., considered alone or in combination, describe nor suggest, an automatic transfer switch controller including at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources. More specifically, neither Schnackenberg et al. nor Kita et al., considered alone or in combination, describe or suggest an automatic transfer switch controller including a power supply circuit to regulate and filter input power. Additionally, neither Schnackenberg et al. nor Kita et al., considered alone or in combination, describe or suggest an automatic transfer switch controller including an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies. Rather, in contrast to the present invention, Schnackenberg et al. describe an automatic transfer switch apparatus but, do not describe nor suggest at least one transformer, a power supply circuit to filter input power and an embedded microcontroller configured to monitor utility and generator frequencies. Kita et al. describe a motor operation controller, which can accommodate different power supply voltages by changing a minimum circuit configuration using common motors, wiring, etc. but, do not describe nor suggest a microcontroller that is configured to recognize jumper selections for supply voltages. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Schnackenberg et al., in view of Kita et al.

Claims 7 and 8 depend from independent Claim 1. When the recitations of Claims 7 and 8 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claims 7 and 8 likewise are patentable over Schnackenberg et al., in view of Kita et al.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 7 and 8 be withdrawn.

The rejection of Claims 9 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Schnackenberg et al. (U.S. Pat. No. 6,172,432) in view of Reason et al. (U.S. Pat. No. 6,196,012) and further in view of Schilling (U.S. Pat. No. 4,226,581) is respectfully traversed.

Schnackenberg et al. is described above. Reason et al. describe transport refrigeration system 100 including a refrigerant used to cool box air of the refrigeration transport system 100. The refrigerant is first compressed by a compressor 116, which is driven by a motor 118, which drives a compressor 116 having two unloaders, each for selectively unloading a pair of cylinders under selective operating conditions. In the compressor 116, the refrigerant is compressed to a higher temperature and pressure. The refrigerant then moves to the air-cooled condenser 114, which includes a plurality of condenser coil fins and tubes 122, which receive air blown by a condenser fan. The refrigerant then flows to a receiver 132 that provides storage for excess liquid refrigerant during low temperature operation. From the receiver 132, the refrigerant flows through subcooler unit 140, then to a filter-drier 124 which keeps the refrigerant clean and dry, and then to a heat exchanger 142, which increases the refrigerant subcooling. The refrigeration system are monitored and controlled by a controller 150 that includes a microprocessor 154 and its associated memory 156 and receive inputs from sensors in the refrigeration system including an engine oil pressure switch (ENOPS). Notably, Reason et al. do not describe nor suggest a generator control board configured to interface with a microcontroller.

Schilling describes a safe start check circuit 10 for a fuel burner that includes two relays, 40 and 60, that are arranged to insure proper start and to protect against component failure and include a dry contact. Notably, Schilling does not describe a generator control board that is configured with a set of dry contact outputs for starter motor control including at least one of a fuel/run contact output and a start contact output.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Schnackenberg et al., Reason et al., nor Schilling, considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to

combine Schnackenberg et al., with Reason et al., or Schilling, because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicant's own teaching. Rather, only the conclusory statement that “[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Schnackenberg et al. as modified by Reason et al. and Schilling for the purposes of avoiding overpowering ... the generator and the engine...” suggests combining the disclosures. Furthermore, Applicant respectfully disagrees with the assertion within the Office Action that dry contacts are contacts which open and close but do not make or break the circuit. Schilling et al. may use the phrase “dry contact” to refer to contacts which open and close but do not make or break the circuit but, Applicant respectfully submits it would be improper to apply that particular usage generally and to the present application in particular.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levingood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Further, and to the extent understood, none of Schnackenberg et al., Reason et al., nor Schilling, considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically Claim 1 recites an automatic transfer switch controller comprising “a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.”

None of Schnackenberg et al., Reason et al., nor Schilling, considered alone or in combination, describe or suggest an automatic transfer switch controller comprising "a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, none of Schnackenberg et al., Reason et al., nor Schilling, considered alone or in combination, describe nor suggest, an automatic transfer switch controller including at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources. More specifically, none of Schnackenberg et al., Reason et al., nor Schilling, considered alone or in combination, describe or suggest an automatic transfer switch controller including a power supply circuit to regulate and filter input power. Additionally, none of Schnackenberg et al., Reason et al., nor Schilling, considered alone or in combination, describe or suggest an automatic transfer switch controller including an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies. Rather, in contrast to the present invention, Schnackenberg et al. describe an automatic transfer switch apparatus but, do not describe nor suggest at least one transformer, a power supply circuit to filter input power and an embedded microcontroller configured to monitor utility and generator frequencies and Reason et al. describe a transport refrigeration system including an engine oil pressure switch but, do not describe nor suggest a generator control board configured to interface with a microcontroller. Additionally, Schilling describes a safe start check circuit for a fuel burner that includes a dry contact but, Schilling does not describe a generator control board that is configured with a set of dry contact outputs for starter motor control including at least one of a fuel/run contact output and a start contact output. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Schnackenberg et al., in view of Reason et al. and further in view of Schilling.

Claims 9 and 10 depend from independent Claim 1. When the recitations of Claims 9 and 10 are considered in combination with the recitations of Claim 1, Applicant submits that

dependent Claims 9 and 10 likewise are patentable over Schnackenberg et al., in view of Reason et al. and further in view of Schilling.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 9 and 10 be withdrawn.

The rejection of Claims 13 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Schnackenberg et al. (U.S. Pat. No. 6,172432) in view of Bogel (U.S. Pat. No. 4,384,213) is respectfully traversed.

Schnackenberg et al. is described above. Bogel describes an automatic control transfer device (ATC) 12 for selectively energizing an electrical distribution system 14 from a pair of electrical power sources 16 and 18. Sources 16 and 18 are selectively connected to load 14 through a first and a second main circuit breakers 52-1 and 52-2. Circuit breakers 52-1 and 52-2 are operated by ATC device 12 according to the status of sources 16 and 18. ATC 12 senses electrical conditions upon sources 16 and 18 through a pair of connections 24 and 26. Parameters sensed by ATC 12 include voltage on each phase, phase sequence, and frequency. Logic circuitry within ATC 12 acts to select the highest quality source to supply power to load 14. ATC 12 includes three independently adjustable timers: an on-delay, an off-delay, and a generator shutdown for each source. Notably, Bogel does not describe a microcontroller that is configured to recognize jumper selections for frequencies of 50 Hz and 60 Hz.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Schnackenberg et al. nor Bogel, considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Schnackenberg et al., with Bogel, because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicant's own teaching. Rather, only the conclusory statement that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Schnackenberg et al. with the teachings of Bogel for the purpose of

ensuring that when a failed source returns to normal, the voltage is stabilized before a retransfer will occur" suggests combining the disclosures.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levingood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Further, and to the extent understood, neither Schnackenberg et al. nor Bogel, considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically Claim 1 recites an automatic transfer switch controller comprising "a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface."

Neither Schnackenberg et al. nor Bogel, considered alone or in combination, describe or suggest an automatic transfer switch controller comprising "a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, neither Schnackenberg et al. nor Bogel, considered alone or in combination, describe nor suggest, an automatic transfer switch controller including at least one transformer to convert utility and generator power

sources into power supply voltages and voltage sensing sources. More specifically, neither Schnackenberg et al. nor Bogel, considered alone or in combination, describe or suggest an automatic transfer switch controller including a power supply circuit to regulate and filter input power. Additionally, neither Schnackenberg et al. nor Bogel, considered alone or in combination, describe or suggest an automatic transfer switch controller including an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies. Rather, in contrast to the present invention, Schnackenberg et al. describe an automatic transfer switch apparatus but, do not describe nor suggest at least one transformer, a power supply circuit to filter input power and an embedded microcontroller configured to monitor utility and generator frequencies. Bogel describes an automatic control transfer device (ATC) for selectively energizing an electrical distribution system from a pair of electrical power sources but, does not describe nor suggest microcontroller that is configured to recognize jumper selections for frequencies of 50 Hz and 60 Hz. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Schnackenberg et al., in view of Bogel.

Claims 13 and 14 depend from independent Claim 1. When the recitations of Claims 13 and 14 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claims 13 and 14 likewise are patentable over Schnackenberg et al., in view of Bogel.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 13 and 14 be withdrawn.

The rejection of Claims 15, 18, 19, 25, and 26 under 35 U.S.C. § 103(a) as being unpatentable over Kern et al. (U.S. Pat. No. 6,181,028) in view of Schnackenberg et al. (U.S. Pat. No. 6,172,432) is respectfully traversed.

Schnackenberg et al. is described above. Kern et al. describe a transfer mechanism 10 for transferring a supply of power between a generator 44 and a utility source 42. The transfer mechanism 10 includes a monitoring system 188 for monitoring the power supplied by utility source 42. The monitoring system 188 starts generator 44 in response to a power outage from the utility source 42 and stops generator 44 in response to a restoration of power from utility source 42. A power relay 77 has a utility input connectable to utility source 42, a generator input connectable to generator 44, an output connectable to a load, and a movable contact for

selectively interconnecting one of the inputs to the output in response to a generation of power by generator 44.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Kern et al. nor Schnackenberg et al., considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Kern et al., with Schnackenberg et al., because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicant's own teaching. Rather, only the conclusory statement that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kern et al. with the teachings of Schnackenberg et al. for the purpose of enabling a stand alone generator to supply electrical power to a plurality of electrical circuits..." suggests combining the disclosures.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levingood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Further, and to the extent understood, neither Kern et al. nor Schnackenberg et al., considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically Claim 15 recites an automatic transfer switch system including "an input configured to be connected to a utility power source...an input configured to be connected to a generator power source...a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source...an automatic transfer switch controller comprising...a power

supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.”

Neither Kern et al. nor Schnackenberg et al., considered alone or in combination, describe or suggest an automatic transfer switch system including “an input configured to be connected to a utility power source, an input configured to be connected to a generator power source, a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source, an automatic transfer switch controller including, a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, neither Kern et al. nor Schnackenberg et al., considered alone or in combination, describe nor suggest, an automatic transfer switch controller including at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources. More specifically, neither Kern et al. nor Schnackenberg et al., considered alone or in combination, describe or suggest an automatic transfer switch controller including a power supply circuit to regulate and filter input power. Additionally, neither Kern et al. nor Schnackenberg et al., considered alone or in combination, describe or suggest an automatic transfer switch controller including an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies. Rather, in contrast to the present invention, Kern et al. describe a transfer mechanism for transferring a supply of power between a generator and utility source that includes a monitoring system, and a power relay that includes a utility input, a generator input, an output connectable to a load, and a movable contact but, do not describe nor suggest an automatic transfer switch, and Schnackenberg et al. describe an

automatic transfer switch apparatus but, do not describe nor suggest at least one transformer, a power supply circuit to filter input power and an embedded microcontroller configured to monitor utility and generator frequencies. For at least the reasons set forth above, Claim 15 is submitted to be patentable over Kern et al., in view of Schnackenberg et al.

Claims 18, 19, 25, and 26 depend from independent Claim 15. When the recitations of Claims 18, 19, 25, and 26 are considered in combination with the recitations of Claim 15, Applicant submits that dependent Claims 18, 19, 25, and 26 likewise are patentable over Kern et al., in view of Schnackenberg et al.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 15, 18, 19, 25, and 26 be withdrawn.

The rejection of Claims 16 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Kern et al. (U.S. Pat. No. 6,181,028) as modified by Schnackenberg et al. (U.S. Pat. No. 6,172,432) and further in view of Gagnon (U.S. Pat. No. 6,288,640) is respectfully traversed.

Kern et al., Schnackenberg et al. and Gagnon are described above.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Kern et al., Schnackenberg et al., nor Gagnon, considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Kern et al., with Schnackenberg et al., or Gagnon, because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicant's own teaching. Rather, only the conclusory statement that “[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kern et al. as modified by Schnackenberg et al. with the teachings of Gagnon because digital signals while containing the same information as analog, provide a stable output which is easier to distinguish from noise, thereby avoiding false alarms caused by drift.” suggests combining the disclosures. Furthermore, Applicant respectfully disagrees with the assertion within the Office Action that

digital signals while containing the same information as analog, provide a stable output which is easier to distinguish from noise, thereby avoiding false alarms caused by drift. Rather, in contrast to such an assertion, Applicant submits that one skilled in the art, would know that the causes of noise and drift in electrical circuits are different and that correcting a cause of noise does not necessarily address a problem with drift. Additionally, Gagnon does not describe using an analog-to-digital converter to correct a noise problem but, rather describes converting an analog signal to a digital signal using an analog-to-digital converter to make the signal suitable for use by a microcontroller. (Column 4, lines 50-55).

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levingood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Further, and to the extent understood, none of Kern et al., Schnackenberg et al., nor Gagnon, considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically Claim 15 recites an automatic transfer switch system including "an input configured to be connected to a utility power source...an input configured to be connected to a generator power source...a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source...an automatic transfer switch controller comprising...a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface."

None of Kern et al., Schnackenberg et al., nor Gagnon, considered alone or in combination, describe or suggest an automatic transfer switch system including "an input configured to be connected to a utility power source, an input configured to be connected to a generator power source, a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source, an automatic transfer switch controller including, a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, none of Kern et al., Schnackenberg et al., nor Gagnon, considered alone or in combination, describe nor suggest, an automatic transfer switch controller including at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources. More specifically, none of Kern et al., Schnackenberg et al., nor Gagnon, considered alone or in combination, describe or suggest an automatic transfer switch controller including a power supply circuit to regulate and filter input power. Additionally, none of Kern et al., Schnackenberg et al., nor Gagnon, considered alone or in combination, describe or suggest an automatic transfer switch controller including an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies. Rather, in contrast to the present invention, Kern et al. describe a transfer mechanism for transferring a supply of power between a generator and utility source that includes a monitoring system, and a power relay that includes a utility input, a generator input, an output connectable to a load, and a movable contact but, do not describe nor suggest an automatic transfer switch, Schnackenberg et al. describe an automatic transfer switch apparatus but, do not describe nor suggest at least one transformer, a power supply circuit to filter input power and an embedded microcontroller configured to monitor utility and generator frequencies, and Gagnon describes an intrusion detection system including a plurality of sensors, a corresponding plurality of receivers, an analog-to-digital (A-to-D) converter within a microcontroller and a processor that compares potential alarm signals from a plurality of sensors but, Gagnon does not describe a low pass filter configured to remove noise from the power supply. For at least

the reasons set forth above, Claim 15 is submitted to be patentable over Kern et al., in view of Schnackenberg et al. and further in view of Gagnon.

Claims 16 and 17 depend from independent Claim 15. When the recitations of Claims 16 and 17 are considered in combination with the recitations of Claim 15, Applicant submits that dependent Claims 16 and 17 likewise are patentable over Kern et al., in view of Schnackenberg et al. and further in view of Gagnon.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 16 and 17 be withdrawn.

The rejection of Claim 20 under 35 U.S.C. § 103(a) as being unpatentable over Kern et al. (U.S. Pat. No. 6,181,028) as modified by Schnackenberg et al. (U.S. Pat. No. 6,172,432) and further in view of Iverson et al. (U.S. Pat. No. 4,423,336) is respectfully traversed.

Kern et al., Schnackenberg et al. and Iverson et al. are described above.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Kern et al., Schnackenberg et al., nor Iverson et al., considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Kern et al., with Schnackenberg et al., or Iverson et al., because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicant's own teaching. Rather, only the conclusory statement that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kern et al. as modified by Schnackenberg et al. with the teachings of Iverson et al. for the purpose of setting day, time, and duration of the generator set exercise." suggests combining the disclosures.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. *Ex parte Levingood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather,

there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. *In re Vaeck*, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Further, and to the extent understood, none of Kern et al., Schnackenberg et al., nor Iverson et al., considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically Claim 15 recites an automatic transfer switch system including "an input configured to be connected to a utility power source...an input configured to be connected to a generator power source...a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source...an automatic transfer switch controller comprising...a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface."

None of Kern et al., Schnackenberg et al., nor Iverson et al., considered alone or in combination, describe or suggest an automatic transfer switch system including "an input configured to be connected to a utility power source, an input configured to be connected to a generator power source, a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source, an automatic transfer switch controller including, a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry

of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, none of Kern et al., Schnackenberg et al., nor Iverson et al., considered alone or in combination, describe nor suggest, an automatic transfer switch system including at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources. More specifically, none of Kern et al., Schnackenberg et al., nor Iverson et al., considered alone or in combination, describe or suggest an automatic transfer switch system including a power supply circuit to regulate and filter input power. Additionally, none of Kern et al., Schnackenberg et al., nor Iverson et al., considered alone or in combination, describe or suggest an automatic transfer switch system including an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies. Rather, in contrast to the present invention, Kern et al. describe a transfer mechanism for transferring a supply of power between a generator and utility source that includes a monitoring system, and a power relay that includes a utility input, a generator input, an output connectable to a load, and a movable contact but, do not describe nor suggest an automatic transfer switch, Schnackenberg et al. describe an automatic transfer switch apparatus but, do not describe nor suggest at least one transformer, a power supply circuit to filter input power and an embedded microcontroller configured to monitor utility and generator frequencies, and Iverson et al. describe an electromechanically controlled switch assembly but, do not describe nor suggest a microcontroller that is configured to recognize jumper selections for an exerciser clock. For at least the reasons set forth above, Claim 15 is submitted to be patentable over Kern et al., in view of Schnackenberg et al. and further in view of Iverson et al.

Claim 20 depend from independent Claim 15. When the recitations of Claim 20 are considered in combination with the recitations of Claim 15, Applicant submits that dependent Claim 20 likewise are patentable over Kern et al., in view of Schnackenberg et al. and further in view of Iverson et al.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claim 20 be withdrawn.

The rejection of Claims 21 and 22 under 35 U.S.C. § 103(a) as being unpatentable over Kern et al. (U.S. Pat. No. 6,181,028) as modified by Schnackenberg et al. (U.S. Pat. No.

6,172,432) and further in view of Kita et al. (U.S. Pat. No. 6,335,871) is respectfully traversed.

Kern et al., Schnackenberg et al. and Kita et al. are described above.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Kern et al., Schnackenberg et al., nor Kita et al., considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Kern et al., with Schnackenberg et al., or Kita et al., because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicant's own teaching. Rather, only the conclusory statement that “[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kern et al. as modified by Schnackenberg et al. with the teachings of Kita et al. for the purpose of providing a motor operation controller which can accommodate different power supply voltages” suggests combining the disclosures.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. *In re Vaeck*, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Further, and to the extent understood, none of Kern et al., Schnackenberg et al., nor Kita et al., considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically Claim 15 recites an automatic transfer switch system including “an input configured to be connected to a utility power source...an input configured to be

connected to a generator power source...a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source...an automatic transfer switch controller comprising...a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface."

None of Kern et al., Schnackenberg et al., nor Kita et al., considered alone or in combination, describe or suggest an automatic transfer switch system including "an input configured to be connected to a utility power source, an input configured to be connected to a generator power source, a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source, an automatic transfer switch controller including, a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, none of Kern et al., Schnackenberg et al., nor Kita et al., considered alone or in combination, describe nor suggest, an automatic transfer switch system including at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources. More specifically, none of Kern et al., Schnackenberg et al., nor Kita et al., considered alone or in combination, describe or suggest an automatic transfer switch system including a power supply circuit to regulate and filter input power. Additionally, none of Kern et al., Schnackenberg et al., nor Kita et al., considered alone or in combination, describe or suggest an automatic transfer switch system including an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies. Rather,

in contrast to the present invention, Kern et al. describe a transfer mechanism for transferring a supply of power between a generator and utility source that includes a monitoring system, and a power relay that includes a utility input, a generator input, an output connectable to a load, and a movable contact but, do not describe nor suggest an automatic transfer switch, Schnackenberg et al. describe an automatic transfer switch apparatus but, do not describe nor suggest at least one transformer, a power supply circuit to filter input power and an embedded microcontroller configured to monitor utility and generator frequencies, and Kita et al. describe a motor operation controller, which can accommodate different power supply voltages by changing a minimum circuit configuration using common motors, wiring, etc. but, do not describe nor suggest a microcontroller that is configured to recognize jumper selections for supply voltages. For at least the reasons set forth above, Claim 15 is submitted to be patentable over Kern et al., in view of Schnackenberg et al. and further in view of Kita et al.

Claims 21 and 22 depend from independent Claim 15. When the recitations of Claims 21 and 22 are considered in combination with the recitations of Claim 15, Applicant submits that dependent Claims 21 and 22 likewise are patentable over Kern et al., in view of Schnackenberg et al. and further in view of Kita et al.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 21 and 22 be withdrawn.

The rejection of Claims 23 and 24 under 35 U.S.C. § 103(a) as being unpatentable over Kern et al. (U.S. Pat. No. 6,181,028) as modified by Schnackenberg et al. (U.S. Pat. No. 6,172,432) and further in view of Reason et al. (U.S. Pat. No. 6,196,012) is respectfully traversed.

Kern et al., Schnackenberg et al. and Reason et al. are described above.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Kern et al., Schnackenberg et al., nor Reason et al., considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office

Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Kern et al., with Schnackenberg et al., or Reason et al., because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicant's own teaching. Rather, only the conclusory statement that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kern et al. as modified by Schnackenberg et al. with the teachings of Reason et al. for the purpose of avoiding overpowering...the generator and the engine..." suggests combining the disclosures.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levingood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Further, and to the extent understood, none of Kern et al., Schnackenberg et al., nor Reason et al., considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically Claim 15 recites an automatic transfer switch system including "an input configured to be connected to a utility power source...an input configured to be connected to a generator power source...a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source...an automatic transfer switch controller comprising...a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at

least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface."

None of Kern et al., Schnackenberg et al., nor Reason et al., considered alone or in combination, describe or suggest an automatic transfer switch system including "an input configured to be connected to a utility power source, an input configured to be connected to a generator power source, a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source, an automatic transfer switch controller including, a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, none of Kern et al., Schnackenberg et al., nor Reason et al., considered alone or in combination, describe nor suggest, an automatic transfer switch system including at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources. More specifically, none of Kern et al., Schnackenberg et al., nor Reason et al., considered alone or in combination, describe or suggest an automatic transfer switch system including a power supply circuit to regulate and filter input power. Additionally, none of Kern et al., Schnackenberg et al., nor Reason et al., considered alone or in combination, describe or suggest an automatic transfer switch system including an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies. Rather, in contrast to the present invention, Kern et al. describe a transfer mechanism for transferring a supply of power between a generator and utility source that includes a monitoring system, and a power relay that includes a utility input, a generator input, an output connectable to a load, and a movable contact but, do not describe nor suggest an automatic transfer switch, Schnackenberg et al. describe an automatic transfer switch apparatus but, do not describe nor suggest at least one transformer, a power supply circuit to filter input power and an embedded microcontroller configured to monitor utility and generator frequencies, and Reason et al. describe a transport refrigeration system including an

engine oil pressure switch but, do not describe nor suggest a generator control board configured to interface with a microcontroller.

Furthermore, Applicant respectfully disagrees with the assertion within the Office Action that dry contacts are contacts which open and close but do not make or break the circuit, and such contacts are suitable for control purposes because they provide general purpose switching for turning devices on or off. Contacts which open and close a circuit, necessarily make or break the circuit, otherwise they would have no function. Additionally, contacts which do not make or break the circuit would not be suitable for turning devices on or off. For at least the reasons set forth above, Claim 15 is submitted to be patentable over Kern et al., in view of Schnackenberg et al. and further in view of Reason et al.

Claims 23 and 24 depend from independent Claim 15. When the recitations of Claims 23 and 24 are considered in combination with the recitations of Claim 15, Applicant submits that dependent Claims 23 and 24 likewise are patentable over Kern et al., in view of Schnackenberg et al. and further in view of Reason et al.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 23 and 24 be withdrawn.

The rejection of Claims 27 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Kern et al. (U.S. Pat. No. 6,181,028) as modified by Schnackenberg et al. (U.S. Pat. No. 6,172,432) and further in view of Bogel (U.S. Pat. No. 4,384,213) is respectfully traversed.

Kern et al., Schnackenberg et al. and Bogel are described above.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Kern et al., Schnackenberg et al., nor Bogel, considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Kern et al., with Schnackenberg et al., or Bogel, because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicant's own

teaching. Rather, only the conclusory statement that “[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kern et al. as modified by Schnackenberg et al. with the teachings of Bogel for purposes of ensuring that when a failed source returns to normal, the voltage is stabilized before a retransfer will occur...ensuring that momentary dips in voltage will not cause a transfer operation...and ensuring that the frequency has reached a proper operating range...” suggests combining the disclosures.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levingood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Further, and to the extent understood, none of Kern et al., Schnackenberg et al., nor Bogel, considered alone or in combination, describe or suggest the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically Claim 15 recites an automatic transfer switch system including “an input configured to be connected to a utility power source...an input configured to be connected to a generator power source...a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source...an automatic transfer switch controller comprising...a power supply circuit to regulate and filter input power...at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources...a voltage sense signal conditioning circuit...a solenoid driver circuit to drive automatic transfer switch solenoids...an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies...a user interface to said microcontroller for operator entry of instructions...at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface.”

None of Kern et al., Schnackenberg et al., nor Bogel, considered alone or in combination, describe or suggest an automatic transfer switch system including “an input

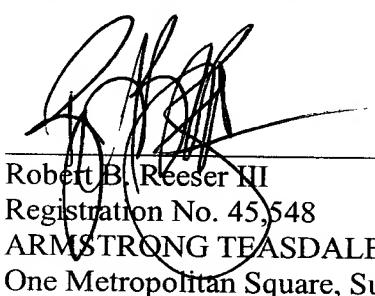
configured to be connected to a utility power source, an input configured to be connected to a generator power source, a transfer switch configured to switch a load from said utility power source to said generator power source and further configured to switch the load back to said utility power source, an automatic transfer switch controller including, a power supply circuit to regulate and filter input power, at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources, a voltage sense signal conditioning circuit, a solenoid driver circuit to drive automatic transfer switch solenoids, an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies, a user interface to said microcontroller for operator entry of instructions, at least one LED indicator interfaced to said microcontroller to indicate operator entry of instructions at said user interface. Specifically, none of Kern et al., Schnackenberg et al., nor Bogel, considered alone or in combination, describe nor suggest, an automatic transfer switch system including at least one transformer to convert utility and generator power sources into power supply voltages and voltage sensing sources. More specifically, none of Kern et al., Schnackenberg et al., nor Bogel, considered alone or in combination, describe or suggest an automatic transfer switch system including a power supply circuit to regulate and filter input power. Additionally, none of Kern et al., Schnackenberg et al., nor Bogel, considered alone or in combination, describe or suggest an automatic transfer switch system including an embedded microcontroller configured to control logic functions and to monitor utility and generator voltages and frequencies. Rather, in contrast to the present invention, Kern et al. describe a transfer mechanism for transferring a supply of power between a generator and utility source that includes a monitoring system, and a power relay that includes a utility input, a generator input, an output connectable to a load, and a movable contact but, do not describe nor suggest an automatic transfer switch, Schnackenberg et al. describe an automatic transfer switch apparatus but, do not describe nor suggest at least one transformer, a power supply circuit to filter input power and an embedded microcontroller configured to monitor utility and generator frequencies, and Bogel describes an automatic control transfer device (ATC) for selectively energizing an electrical distribution system from a pair of electrical power sources but, does not describe nor suggest microcontroller that is configured to recognize jumper selections for frequencies of 50 Hz and 60 Hz. For at least the reasons set forth above, Claim 15 is submitted to be patentable over Kern et al., in view of Schnackenberg et al. and further in view of Bogel.

Claims 27 and 28 depend from independent Claim 15. When the recitations of Claims 27 and 28 are considered in combination with the recitations of Claim 15, Applicant submits that dependent Claims 27 and 28 likewise are patentable over Kern et al., in view of Schnackenberg et al. and further in view of Bogel.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 23 and 24 be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Peter J. Radusewicz

: Art Unit: 2836

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: Examiner: Polk, Sharon A.

Filed: December 29, 2000

For: AUTOMATIC TRANSFER SWITCH
SYSTEMS AND CONTROLLERS

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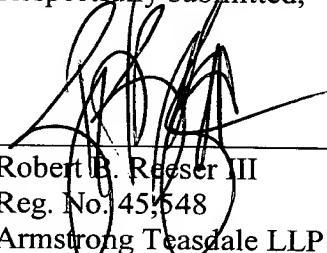
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